Science Blast 2025- Croagh N.S.

Hypothesis: What effect will introducing a coloured sliotar have on visibility from varying distances?

Resources: White, fluorescent, multicoloured (black, purple and orange) sliotars, cones, clipboards, marking sheets, metre sticks and trundles.

Purpose: The object was to test which coloured sliotar was most visible from varying distances.

Method:

1. First, at our local hurling pitch, Croagh-Kilfinny GAA, we measured three different points; 80m, 120m and 140m. These distances would be the rows where the cones/sliotars would be placed. We had two stations operating at each time. Each station would cater for one of the two classrooms in our school.
2. Next, at these distances we laid out four multicoloured cones at equal distances from each other. Each row had the same-coloured cone. E.g., first row-orange, second row-blue and last row-red.
3. Then, we placed three sliotars, a white, a fluorescent and one of the multicoloured sliotars beside each cone on every row.
4. One cone on each row, pre-selected by our classroom, would not have any sliotar beside it- a blank. We decided to do this in a hope that their

answers would not be a guess, in a way to ensure the credibility of their answers.

5. Students were brought from a holding area to participate in the experiment. Using scripts, students in our classroom introduced and conducted the experiment with the junior room and middle room.

6. *However,* we realised almost immediately that there were many flaws with the set-up of our experiment.

7. Thursday, 10th April was the day we carried out the investigation. It was during the heatwave that occurred in Ireland. That morning was exceptionally bright and sunny. Students were facing the sun directly while attempting to identify the colour of each sliotar. This effected the child's ability to see the different coloured sliotars from varying distances.

8. The children in the junior room found it harder to complete two tasks; (A) to see the sliotars and (B) to answer the question we asked them.

9. The distances were another stumbling block. The original distances of 80m, 110m and 140m would need to be reduced.

New Method

1. *Distances were now 34m, 64m and 84m.*
2. *We mounted the sliotars on the top of each cone so to raise them off the grass (the grass was longer than expected).*
3. *Students pointed the metre stick at each cone. This enabled the participant to focus on the correct cone.*
4. *As mentioned earlier, it was a sunny day. By mid-morning the temperatures had risen to the mid-teens. It was decided that we increase testing by 100%. There were now four participants taken at once.*

Data Collection:

1. We counted the marking sheets. We discovered that 42 students participated, with zero spoiled.
2. Next, we multiplied each coloured sliotar by 3. This was because we had x3 sliotars on x3 rows.
3. After that, we ascertained the most visible sliotar from each of the 3 rows.
4. Finally, we determined which of the multicoloured sliotars was most visible.

<u>Results:</u>

Most visible sliotar in Row 1 (34m)

Fluorescent 28/42 = 67%

White 20/42= 48%

Multicoloured Black 22/42= 52%

Most visible sliotar in Row 2 (64m)

Fluorescent 14/42 = 33%

White 10/42= 24%

Multicoloured Purple 3/42= 7%

Most visible sliotar in Row 3 (84m)

Fluorescent 13/42 = 30%

White 21/42= 50%

Multicoloured Orange 3/42= 7%

Overall

Which sliotar scored the best /126?

42 students participated. We had x3 of each sliotar from all the rows. 42 X3= 126

Fluorescent 104/126 = 83%

White 55/126= 44%

Multicoloured 28/126= 22%

Dissection of the Multicoloured sliotars

Black sliotar 23/42= 55%

Purple sliotar 3/42= 7%

Orange sliotar 3/42= 7%

Improvements that could be achieved in future studies:

1. Though we typed out scripts that we planned to use, we found them redundant as it slowed down the process. We mostly went off-script for the experiment.
2. We also used leading questions;
   Do you see…? / Can you see…? Is there a sliotar there?
3. Though we found the black sliotar was most visible from the multicoloured sliotars, it was a flawed result.
   Black sliotar – 34m
   Purple sliotar-64m
   Orange 84m
   As the black sliotar was the closest sliotar to the participants, it skewed the overall findings. The orange was furthest away and scored a misery 7%, as did the purple sliotar at 64m. Further studies would need to be completed to achieve a more satisfactory and complete result
4. Further studies would warrant to be completed on a cloudy day and on a wet day. These weather types are more frequent in Ireland.

Conclusion

In conclusion, we achieved our goals that we set from the beginning. We had predicted the fluorescent sliotar would be the most visible and the results have validated our forecast.

Displaying Results:

	34m	64m	84m	No Pupils
Flourecent	28	14	13	42
White	20	10	21	42
Mixed	22	3	3	42
	Black	Purple	Orange	

34m	64m	84m
66.67%	33.33%	30.95%
47.62%	23.81%	50.00%
52.38%	7.14%	7.14%
Black	Purple	Orange

Bar Graph